

Zeyu HU

The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong.
☎ + (86)18133659701 | ✉ zhuam@connect.ust.hk | 🌐 <https://hzykent.github.io/>

Education

Hong Kong University of Science and Technology

Hong Kong, China

Ph.D. candidate in Computer Science and Engineering

Sept.2018-Present

- **Advisor:** Prof. Chiew-Lan Tai
- **Research Area:** 3D Semantic Segmentation; 3D Object Detection; Joint Learning Framework; Multi-modality Fusion; Point Cloud Registration.

University of Science and Technology of China

Hefei, China

B.S. in Automation

Sept.2014-Jul.2018

- **GPA:** 3.59/4.3 (86.45/100), **Rank:** 11/82; **Language:** TOEFL 106, GRE 323

Publications

- **Indoor Scene Understanding:**
 - **Voxel-Mesh Network for Geodesic-Aware 3D Semantic Segmentation of Indoor Scenes, TPAMI2022, ICCV SI invited**
 - **VMNet: Voxel-Mesh Network for Geodesic-Aware 3D Semantic Segmentation, ICCV2021 Oral**
 - ◆ **Zeyu Hu**, Xuyang Bai, Jiayang Shang, Runze Zhang, Jiayu Dong, Xin Wang, Guangyuan Sun, Hongbo Fu, Chiew-Lan Tai.
 - ◆ A 3D deep architecture that operates on the voxel and mesh representations.
 - **JSENet: Joint Semantic Segmentation and Edge Detection Network for 3d Point Clouds, ECCV2020**
 - ◆ **Zeyu Hu**, Mingmin Zhen, Xuyang Bai, Hongbo Fu, Chiew-lan Tai.
 - ◆ A joint learning framework for 3D semantic segmentation and edge detection.
- **Outdoor Scene Understanding:**
 - **LiDAL: Inter-frame Uncertainty Based Active Learning for 3D LiDAR Semantic Segmentation, ECCV2022**
 - ◆ **Zeyu Hu**, Xuyang Bai, Runze Zhang, Xin Wang, Guangyuan Sun, Hongbo Fu, Chiew-Lan Tai
 - ◆ An active learning framework for annotation cost reduction.
 - **TransFusion: Robust LiDAR-Camera Fusion for 3D Object Detection with Transformers, CVPR2022**
 - ◆ Xuyang Bai, **Zeyu Hu**, Xinge Zhu, Qingqiu Huang, Yilun Chen, Hongbo Fu, Chiew-Lan Tai.
 - ◆ A robust solution to LiDAR-camera fusion.
- **3D Scene Reconstruction:**
 - **SGMNet: Learning to Matching Features with Seeded Graph Matching Network, ICCV2021**
 - ◆ Hongkai Chen, Zixin Luo, Jiahui Zhang, Lei Zhou, Xuyang Bai, **Zeyu Hu**, Chiew-Lan Tai, Long Quan.
 - ◆ An efficient local image feature matching algorithm.
 - **PointDSC: Robust Point Cloud Registration using Deep Spatial Consistency, CVPR2021**
 - ◆ Xuyang Bai, Zixin Luo, Lei Zhou, Hongkai Chen, Lei Li, **Zeyu Hu**, Hongbo Fu, Chiew-Lan Tai
 - ◆ A robust outlier rejection algorithm.

Experience

Research Intern, Tencent Lightspeed & Quantum Studios

Aug.2020-Present

- Research on label-efficient 3D LiDAR semantic segmentation, achieve 95% of the performance of fully supervised learning with less than 5% of annotations on the SemanticKITTI and nuScenes datasets.
- Research on multi-modality 3D LiDAR object detection, achieve the state-of-the-art 3D detection performance on nuScenes and Waymo datasets, achieve the 1st place in the leaderboard of the nuScenes tracking challenge.
- Research on multi-modality 3D indoor semantic segmentation, achieve the leading 3D segmentation performance on ScanNet and S3DIS datasets.
- Develop an algorithm for architectural shape extraction and segmentation model for façade parsing. Both are parts of the city scene reconstruction project.
- Develop a method for scanned object completion.
- Develop a method for image-based indoor scene reconstruction.
- Develop a method for image-based textured mesh generation.

Teaching Assistant, HKUST

Feb.2019-Feb.2020

- COMP 2711 - Discrete Mathematical Tools for Computer Science, Spring 2019
- COMP 1029J - Java Programming Bridging Course, Fall 2019

Skills

Programming Python, C/C++

Libraries PyTorch, TensorFlow, Open3D, OpenCV

Reviewer Services

- IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**)
- European Conference on Computer Vision (**ECCV**)
- IEEE Transactions on Image Processing (**TIP**)
- International Symposium on Mixed and Augmented Reality (**ISMAR**)